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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/657,794	09/08/2000	Christopher P. Laurello	102094-100	3235

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WIGGIN & DANA LLP
ATTENTION: PATENT DOCKETING
ONE CENTURY TOWER, P.O. BOX 1832
NEW HAVEN, CT 06508-1832

EXAMINER

LAVILLA, MICHAEL E

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

0214

Office Action Summary

Application No.

09/657,794

Applicant(s)

LAURELLO ET AL.

Examiner

Michael La Villa

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5-10, 12-23 and 42-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-10, 12-20, 23, 42-48 and 50 is/are rejected.
- 7) ☒ Claim(s) 21, 22, 48, and 49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:
2. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
3. Claims 1, 2, 5-10, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant's Response of 22 September 2003 fails to cite where antecedent support for the invention as now claimed in Claim 1 and those claims dependent on Claim 1 is found. It is unclear where applicant teaches the limitation of an antitarnishing layer of less than 1000 angstroms. Original Claims 3 and 4 do not appear to provide support nor do the portions of the Specification that refer to the layer thickness of this layer. See, for example, page 10, lines 10-12 of the Specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
5. A person shall be entitled to a patent unless –
6. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
8. Claims 13-20, 23, 42-47, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Kodama et al. USP 6,403,234 for the reasons of record in the Office Action mailed on 19 May 2003.
9. Claims 13 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshiaki et al. JP 9-291394 for the reasons of record in the Office Action mailed on 19 May 2003.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. USP 6,403,234. Kodama teaches a copper substrate coated with a nickel/phosphorus layer which is further coated with a tin alloy or tin layer; the laminate can be heated to diffuse the phosphorus into the tin layer; the phosphorus layer is exemplified as 1000 and 2000 Å thick and greater and the phosphorus composition of the diffusion treated coating is 0.02 wt.%. See Kodama (Abstract; col. 2, line 18 through col. 4, line 10; Tables 1 and 2 – including Comparative Ex. 21; and Claims). Kodama does not exemplify using a chromium layer between the intermediate layer and base substrate, but teaches that effective laminates may comprise such a chromium layer. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the chromium layer of Kodama between the intermediate layer and substrate of Kodama as Kodama teaches that such a layer provides effective laminates.

Response to Amendment

- I. In view of applicant's amendments and arguments, applicant traverses the section 102 and 103 rejections over Kodama of the Office Action mailed on 19 May 2003. In view of applicant's amendments, the section 102 rejection, as it pertains to Claim 1 and those claims dependent on Claim 1, and the pending section 103 rejection are withdrawn. Note, however, that the new matter rejection has been applied to the

limitation that was instrumental in obviating these withdrawn rejections. With respect to Claim 13, applicant argues that Kodama does not teach the claimed gradient with specific thickness. Nevertheless, Kodama teaches a gradient of phosphorus and boron in the examples as achieved by reflow, the method used by applicant to obtain applicant's gradient. Kodama teaches a copper substrate, optionally coated with a chromium barrier layer, a nickel/phosphorus/boron layer, and a tin layer. Upon reflow, Kodama teaches a copper substrate, optionally coated with a chromium barrier layer, a nickel/phosphorus/boron layer, a tin/nickel layer, and a tin layer, wherein there is obtained a gradient of phosphorus/boron throughout the original nickel/phosphorus/boron and tin layers. The original nickel/phosphorus/boron layer is described as having 2.5 weight percent phosphorus/boron, whereas the surface layer of the article obtains a few hundredths of a percent of phosphorus/boron, indicating that the claimed gradient is achieved. Either the nickel layer that remains under the nickel/tin interdiffused layer or the chromium layer may be identified with applicant's claimed barrier layer. Hence, rejection is appropriate.

- II. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Yoshiaki of the Office Action mailed on 19 May 2003. Applicant argues that Yoshiaki does not teach three materials and that the claimed gradient is not taught because Yoshiaki teaches a gradient that is opposite to that claimed. Yoshiaki teaches an aluminum substrate material coated with an aluminum/tin overlayer, wherein counter-diffusion results in opposite concentration gradients of aluminum and tin. Aluminum is identified by applicant as an antitarnishing agent. The concentration of aluminum would be highest closest to the substrate and lowest farthest from the substrate, meeting the claimed terms. The aluminum is interdiffused with the tin layer as required. The "second surface" of the claimed "metal layer" would be identified at the sublayer where the claimed 50 % by weight tin in the overlayer is obtained. Hence, rejection is maintained.

Allowable Subject Matter

13. Claims 21, 22, 48, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claimed subject matter of Claims 21, 22, 48, and 49 is not taught or suggested by the prior art of record or the reviewed prior art.

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14. For the reasons discussed above in the rejections and comments, several claims previously indicated as comprising allowable subject matter are rejected over the prior art. The subject matter of Claims 1, 2, 5-10, and 12 is not taught or suggested by the prior art of record or the reviewed prior art, but these claims have been rejected under section 112, first paragraph.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (703) 308-4428. The examiner can normally be reached on Monday through Friday.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

17. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael La Villa
December 8, 2003

